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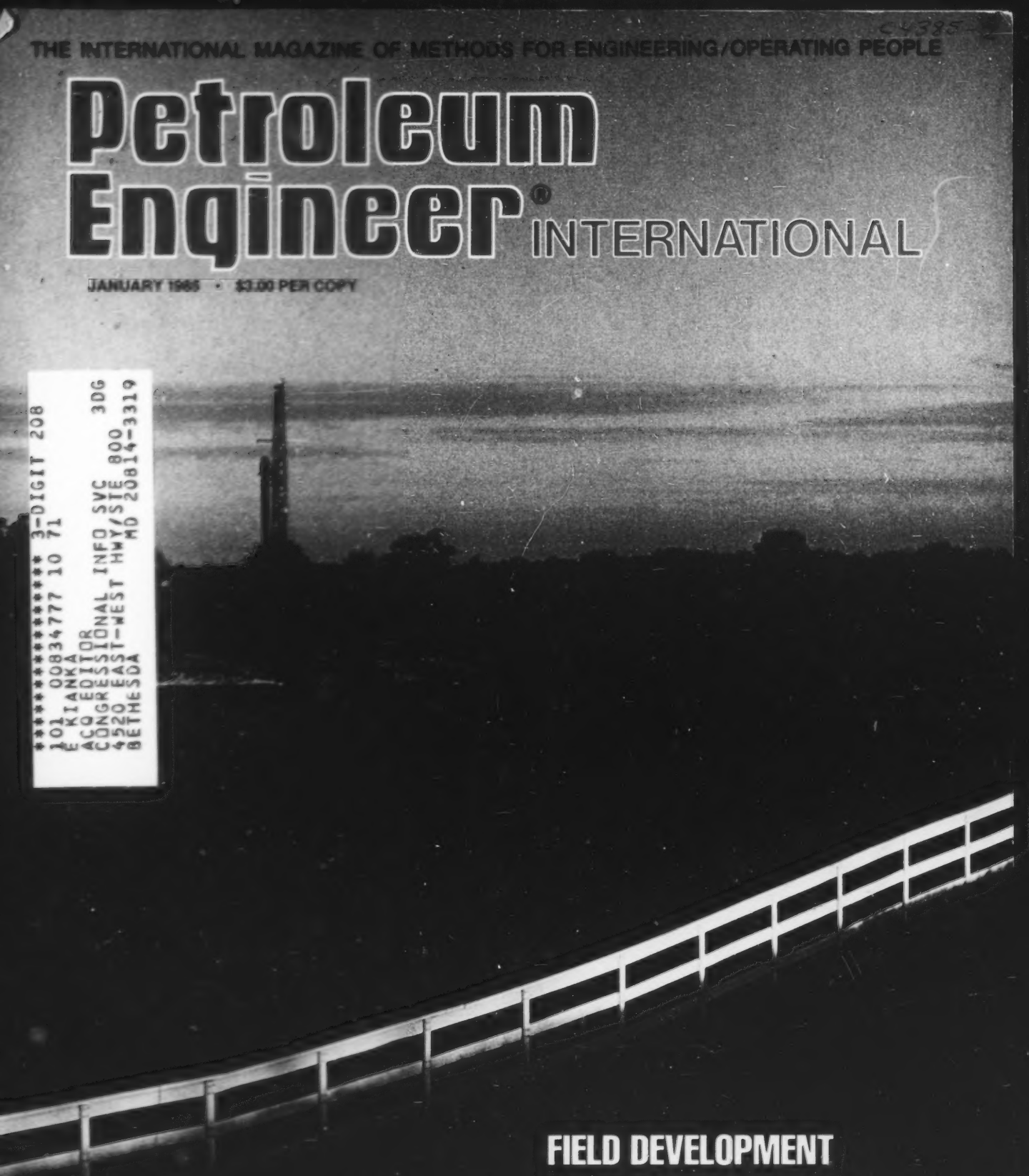

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U.S., Canadian Drillers Keep 3,000 Rigs Rotating

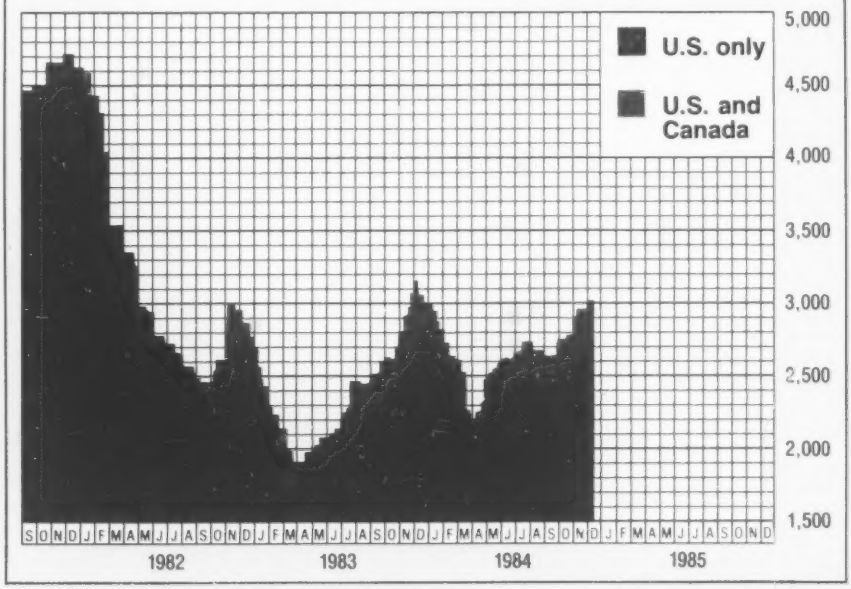
The combined U.S.-Canadian rotary rig count has gone over the 3,000-mark for the first time since last January. The U.S. count of active rigs reached 2,728 in mid-December to mark the high point for the year. Canadian drillers, at the same time, were keeping 338 rigs busy for their highest count since last March.

Although Canada's new Conservative government has been in office only 3 months, that country's energy sector already is responding to Prime Minister Brian Mulroney's pledge to change the National Energy Program which had resulted in drastic cutbacks in drilling, particularly in Alberta.

Rotary rigs actually making hole in United States & Canada

As reported to International Association of Drilling Contractors by Hughes Tool Co.

	Nov. 19, 1984	Nov. 26, 1984	Dec. 3, 1984	Dec. 10, 1984
Alabama				
Land	11	11	13	13
Inland Waters	1	1	1	1
Offshore	4	4	4	4
Total	16	16	18	18
Alaska				
Land	8	9	11	11
Offshore	9	9	9	9
Total	17	18	20	20
Arkansas	29	28	27	30
California				
Land	113	110	112	115
Offshore	21	20	18	19
Total	134	130	130	134
Colorado	65	64	60	60
Florida	4	4	3	3
Hawaii	1	1	1	1
Idaho	2	2	2	2
Illinois	45	43	42	35
Indiana	12	11	8	8
Kansas	140	141	138	139
Kentucky	7	6	8	8
North Louisiana	30	27	22	27
South Louisiana				
Inland Waters	62	63	66	66
Land	103	104	105	113
Offshore	152	154	161	155
Total	347	348	354	361
Michigan	44	44	45	44
Mississippi	30	33	33	47
Montana	45	37	36	34
Nebraska	13	13	12	12
Nevada	7	7	7	8
New Mexico	94	89	92	86
New York	8	9	12	13
North Dakota	50	50	49	49
Ohio	79	74	74	72
Oklahoma	332	326	328	326
Oregon	2	2	3	3
Pennsylvania	50	27	45	46
South Dakota	3	4	5	5
Texas				
Offshore	48	52	48	59
Inland Waters	2	2	4	1
Dist. 1-S. Central Tex.	15	20	16	16
Dist. 2-Middle Tex.	32	43	39	35
Dist. 3-Upper Tex.	112	103	96	104
Dist. 4-Lower Tex.	80	87	103	104
Dist. 5-Northeast Tex.	27	30	30	34
Dist. 6-Far Northeast Tex.	54	62	65	71
Dist. 7B-N. Central Tex.	60	71	74	58
Dist. 7C-W. Central Tex.	71	68	73	73
Dist. 8-Far West Tex.	171	185	165	166
Dist. 8A-West Tex.	83	81	80	82
Dist. 9-N. Tex.	84	80	69	73
Dist. 10-Tex. Panhandle	52	60	58	62
Total	891	944	920	938
Utah	48	48	40	47
Virginia	1	0	0	0
W. Virginia	38	30	44	48
Wyoming	129	133	130	131
Total U.S.	2,683	2,682	2,686	2,728
Canada	297	290	314	326
Canada – Offshore	14	13	13	12
U.S. and Canada	2,994	2,985	3,013	3,066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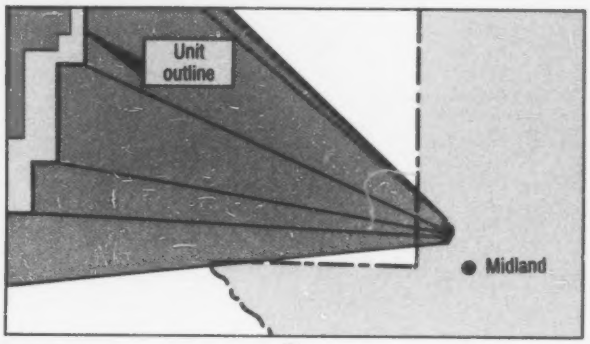

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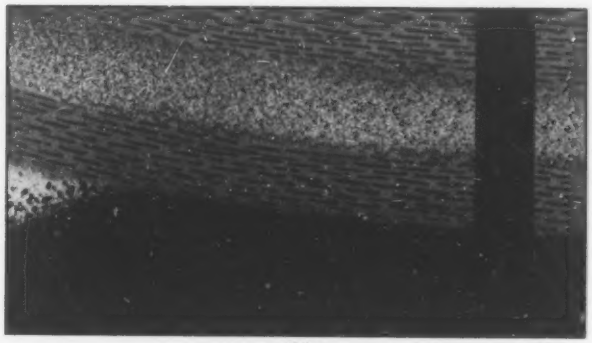

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FIELD DEVELOPMENT

Exxon Pumps New Life Into Old Field 21
by Steven D. Moore, Drilling Editor. A huge infill drilling and enhanced oil recovery project for the Means field includes the drilling of 443 new wells. Production at the field is expected to rise from 8,800 b/d to 15,000 b/d.

What's CO_2 Worth In Miscible Floods? 24
by Michael J. Hyland and Kenneth M. Stern, Chem Systems Inc., and Alan M. Wolsky and Donald J. Jankowski, Argonne National Laboratory. Maximum permissible cost depends on cash flow, but CO_2 must be injected long before production increases.

Pioneering Startups At Garoupa And Cormorant 30
by Derrick Booth, Subsea Data Services. Both Cormorant, in the North Sea, and Garoupa, offshore Brazil, are completed for subsea duty, and each represents a successful milestone achievement. There are, however, intriguing differences.

KCA Designs Quiet, Unobtrusive Rig 42
by W. B. Bleakley, Editor. Operators now can avoid many of the planning and consent problems they face while requesting permits to explore in environmentally sensitive areas where rural attitudes and lack of wide-open spaces are causes for concern.

What's New In Drilling And Production 46
A safety device designed to detect pinhole pressure leaks in oil and gas production systems is among the products described this month. There's also a high-strength proppant that simultaneously resists crushing, embedment, and flowback.

Ultrahigh Sand Concentrations Boost Oklahoma Production 50
by Subhash N. Shah and David R. Smith, Halliburton Services. Recent developments in equipment and fluids have made it possible to pump sand up to a concentration of 20 lb/gal, thereby yielding concentrations greater than 2 lb/sq ft in the fracture.

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ABOUT THE COVER: Development of oil and gas fields does not always take place on rocky slopes and frozen tundra. Sometimes the settings are pastoral. (Photo courtesy of Diamond Shamrock Corp.)

NEXT MONTH: With a growing proportion of the world's oil and gas reserves being found offshore, the February issue will concentrate on international offshore engineering.

Stripper Well Output Up By 20 Million Bbl

Stripper wells in the U.S. registered an increase of more than 20 million bbl during 1983 to mark the fifth year in a row that production of stripper oil outpaced the previous year's output.

Abandonments, however, are up also, for the third straight year.

The annual National Stripper Well Survey, prepared by the Interstate Oil Compact Commission and the National Stripper Well Association, shows that there were 441,501 stripper wells in operation as of Jan. 1, 1984, and that during the 1983 calendar year they produced 462,013,486 bbl of stripper oil. By comparison, there were 416,493 stripper wells as of Jan. 1, 1983, and they produced 441,951,028 bbl of crude. There was, therefore, a 1-year increase of 25,008 wells and an increase in production of 20,062,458 bbl.

U.S. stripper well data for the past 10 years

Year	No. wells	Production, M bbl	Abandonments	Avg. daily prod. per well
1974	366,095	411,936	13,779	3.08
1975	367,872	394,163	13,478	2.93
1976	365,733	392,191	9,916	2.93
1977	368,930	392,532	9,000	2.91
1978	374,635	391,633	8,380	2.86
1979	386,310	394,405	7,668	2.79
1980	395,176	401,095	6,614	2.77
1981	409,539	426,502	7,215	2.85
1982	416,493	441,951	9,426	2.90
1983	441,501	462,013	11,032	2.87

G. E. Stahl, president of the National Stripper Well Association, points out that stripper well abandonments decreased from 13,483 in 1972 to 6,614 in 1980 because "increased price of crude oil, no doubt, extended the life of all stripper wells."

In 1981, however, abandonments increased about 600 nationwide to 7,215 and in 1983 to 11,032, an increase of 3,817. Stahl attributes this to price decreases, and he adds that "any change in stripper well tax provision will cause an even greater increase in well abandonments."

Exxon Tests Two Mississippi Wildcats

Two Exxon Co. U.S.A. wildcats have tested natural gas from a potential new field in Pearl River County, Mississippi, about 6 miles west-southwest of Poplarville.

The Exxon No. 1 Batson-McGehee and the Exxon No. 1 Southern Minerals extended the limits of the Houston producing trend 16 miles to the southeast from the Sandy Hook field.

The Batson-McGehee well tested 6.9 MMcfd of dry gas through a 12/64-in. choke with flowing tubing pressure of 6,040 psi. Drilled to total depth of 15,670 ft, the well tested a 30-ft interval between 15,474 and 15,504 ft.

The Southern Minerals well tested a combined rate of 2.8 MMcfd from two intervals through a 7/64-in. choke with flowing tubing pressure of 4,057 psi. Drilled to 21,778 ft in the Louann Salt, the well was plugged back to test intervals at 15,115-37 ft and 15,459-87 ft.

Wildcatting Down In Australia

A minimum of 218 wildcat and appraisal wells are scheduled to be drilled in Australia during the fiscal year 1984-85. The Australian Petroleum Exploration Association reports that the the figure for the fiscal year from July 1983 to June 1984 was 229 exploration wells, and there were 201 drilled in 1982-83.

An APEA survey indicates a drop in wildcat drilling from 166 to 150 wells, and a 46% decline in seismic work, from 33,652 to about 18,269 miles. The decline is mostly offshore, where 29 exploratory wells are planned, compared with 45 drilled in 1983-84.

Exploration expenditures continue to fall in Australia, and are currently estimated to be about $580 million. The APEA attributes this to the less expensive onshore drilling programs.

Key features of an APEA survey of member companies indicate that:

- 133 wildcat wells are expected to be drilled onshore, with 17 offshore.
- 57 appraisal wells are planned onshore, with 12 offshore.
- 60 development wells are scheduled onshore, with 26 offshore.
- Seismic work onshore will total about 15,500 miles, with just over 2,500 offshore.
- Total expenditures are estimated at $580 million for exploration and $630 million for development.
- By far the most active areas in Australia are the Cooper-Eromanga and Surat-Bowen Basins, where 78.9% of the programmed exploratory wells will be drilled and 86.7% of the onshore seismic work will be recorded.

Texaco Awarded Egyptian Concession

Getty Oil International (East Charib Egypt) Inc., a wholly owned subsidiary of Texaco Inc., has been awarded sole exploration rights to the East Charib concession, a 79,000-acre offshore area in the Gulf of Suez.

This is the second Egyptian exploration venture in which Texaco is currently active. The other is a 25% interest in the 300,000-acre Mid-Gulf Marine area.

Exploratory drilling is expected to begin at East Charib in 1985.

Terra Completes Five Extension Wells

Terra Resources Inc. has completed five oil wells in the first phase of an extension drilling program in the West White Lake field in Vermilion Parish, Louisiana.

State Lease 5674 wells No. 5, 6, 7, and 8 tested 400 b/d, 132 b/d, 192 b/d, and 242 b/d, respectively, with minor quantities of associated gas. The wells are stepouts to two earlier oil discoveries.

In adjoining State Lease 11424, well No. 1 tested 278 b/d of oil with minor quantities of associated gas.

Reading & Bates Has Oklahoma Discovery

Reading & Bates Petroleum Co. has completed a discovery well in Ellis County, Oklahoma, flowing 150 b/d of oil and 75 Mcfd of gas through a 32/64-in. choke from the Tonkawa formation at 6,51[illegible] ft.

Diamond Shamrock Tests Gas In Gulf

Diamond Shamrock Exploration Co.'s Garden Banks Block 224 No. 1 discovery well in the Gulf of Mexico tested gas at a combined rate of 13.1 MMcfd through an 18/64-in. choke with flowing tubing pressure of approximately 3,600 psi.

Drilled to 16,000 ft from the semisubmersible Zapata Neptune in 750 ft of water, the well struck gas-bearing sands in a Pleistocene interval between 7,860 and 8,400 ft. Location of the well is approximately 120 miles southeast of Galveston, Tex.